

CLAIMS

1.           A paper-like sheet discriminator having a paper-like sheet thickness detection device for detecting a thickness of a paper-like sheet, wherein wavelength components less than a specified wavelength are extracted from a thickness signal detected by said paper-like sheet thickness detection device, appearance positions on said paper-like sheet are determined at which the extracted wavelength components being less than the specified wavelength and having amplitude not less than a constant value appear, and the thus determined appearance positions are collated with stored appearance positions on said paper-like sheet at which the wavelength components being less than said specified wavelength and having the amplitude not less than the constant value appear, so as to discriminate genuineness/spuriousness of said paper-like sheet.

2.           A paper-like sheet discriminator having a paper-like sheet thickness detection device for detecting a thickness of a paper-like sheet, wherein a longitudinal positional course along which said paper-like sheet passes through said paper-like sheet thickness detection device is detected, wavelength components less than a specified wavelength are extracted from a thickness signal detected by said paper-like sheet thickness detection device, appearance positions on said paper-like sheet are determined at

which the extracted wavelength components being less than said specified wavelength and having amplitude not less than a constant value appear, and the thus determined appearance positions are collated with stored appearance positions, corresponding to said longitudinal positional course for passage of said paper-like sheet and at which said wavelength components being less than said specified wavelength and having the amplitude not less than the constant value appear, so as to discriminate genuineness/spuriousness of said paper-like sheet.

3. A paper-like sheet discriminator according to claim 1, wherein wavelength components less than a specified wavelength are extracted from a paper-like sheet thickness detection signal, a waveform obtained by extracting the wavelength components less than said specified wavelength of said thickness detection signal is subtracted from the waveform having the extracted wavelength components less than said specified wavelength to determine appearance positions on said paper-like sheet at which the extracted wavelength components being less than said specified wavelength and having amplitude not less than a constant value appear, and the thus determined appearance positions are collated with stored appearance positions on said paper-like sheet at which said wavelength components being less than said specified wavelength and having the amplitude not less than said constant value appear,

so as to discriminate genuineness/spuriousness of said paper-like sheet.

4. A paper-like sheet discriminator according to claim 2, wherein wavelength components less than a specified wavelength are extracted from a paper-like sheet thickness detection signal, a waveform obtained by extracting the wavelength components less than said specified wavelength of said thickness detection signal is subtracted from the waveform having the extracted wavelength components less than said specified wavelength to determine appearance positions on said paper-like sheet at which the extracted wavelength components being less than said specified wavelength and having amplitude not less than a constant value appear, and the thus determined appearance positions are collated with stored appearance positions on said paper-like sheet at which said wavelength components being less than said specified wavelength and having the amplitude not less than said constant value appear, so as to discriminate genuineness/spuriousness of said paper-like sheet.

5. A paper-like sheet discriminator according to claim 1, wherein appearance positions on the paper-like sheet are determined at which said extracted wavelength components being less than said specified wavelength and having amplitude not less than the constant value appear, and the thus determined appearance positions are collated with previously stored appearance

positions, corresponding to a longitudinal positional course for passage of said paper-like sheet and at which said wavelength components being less than said specified wavelength and having the amplitude not less than said constant value appear, so as to discriminate genuineness/spuriousness of said paper-like sheet.

6. A paper-like sheet discriminator according to claim 2, wherein appearance positions on the paper-like sheet are determined at which said extracted wavelength components being less than said specified wavelength and having amplitude not less than the constant value appear, and the thus determined appearance positions are collated with precedently stored appearance positions, corresponding to a longitudinal positional course for passage of said paper-like sheet and at which said wavelength components being less than said specified wavelength and having the amplitude not less than said constant value appear, so as to discriminate genuineness/spuriousness of said paper-like sheet.

7. A paper-like sheet discriminator according to claim 1, wherein a plurality of paper-like sheet thickness detection devices are provided orthogonally to the conveyance direction of paper-like sheet, and the continuity of appearance positions at which wavelength components being less than the specified wavelength and having amplitude not less than a constant value appear is collated mutually between adjacent paper-like sheet thickness detection devices,

so as to discriminate genuineness/spuriousness of the paper-like sheet.

8. A paper-like sheet discriminator according to claim 2, wherein a plurality of paper-like sheet thickness detection devices are provided orthogonally to the conveyance direction of paper-like sheet, and the continuity of appearance positions at which wavelength components being less than the specified wavelength and having amplitude not less than a constant value appear is collated mutually between adjacent paper-like sheet thickness detection devices, so as to discriminate genuineness/spuriousness of the paper-like sheet.

9. A paper-like sheet discriminator according to claim 1, wherein appearance positions at which wavelength components of said paper-like sheet being less than said specified wavelength and having the amplitude either not less than or less than said constant value appear are stored in a geometrical expression of a coordinate system having its origin at an intersection of two orthogonal sides of said paper-like sheet, and positions, corresponding to the longitudinal positional course for passage of said paper-like sheet and at which the wavelength components being less than said specified wavelength and having the amplitude either not less than or less than said constant value appear, are determined through calculation.

10. A paper-like sheet discriminator according to claim 2, wherein appearance positions at which wavelength components of said paper-like sheet being less than said specified wavelength and having the amplitude either not less than or less than said constant value appear are stored in a geometrical expression of a coordinate system having its origin at an intersection of two orthogonal sides of said paper-like sheet, and positions, corresponding to the longitudinal positional course for passage of said paper-like sheet and at which the wavelength components being less than said specified wavelength and having the amplitude either not less than or less than said constant value appear, are determined through calculation.

11. A paper-like sheet discriminator according to claim 1, wherein for extraction of the wavelength from the thickness detection signal, a wavelength, which is less than a detection width being in contact with or projected upon said paper-like sheet thickness detection device in the conveyance direction of said paper-like sheet, is extracted.

12. A paper-like sheet discriminator according to claim 2, wherein for extraction of the wavelength from the thickness detection signal, a wavelength, which is less than a detection width being in contact with or projected upon said paper-like sheet thickness detection device in the conveyance direction of said

paper-like sheet, is extracted.

13. A paper-like sheet discriminator according to claim 1, wherein for extraction of the wavelength from said thickness detection signal, a wavelength of less than 0.8 mm is extracted.

14. A paper-like sheet discriminator according to claim 2, wherein for extraction of the wavelength from said thickness detection signal, a wavelength of less than 0.8 mm is extracted.

15. A paper-like sheet discriminator having a paper-like sheet thickness detection device for detecting a thickness of a paper-like sheet, wherein wavelengths in a specified range are detected from a thickness detection signal of the paper-like sheet detected by said paper-like sheet thickness detection device, an integral value of full-wave rectification of the wavelengths in said specified range is determined and collated with a precedently stored integral value of full-wave rectification of the wavelengths in said specified range so as to detect crumples in said paper-like sheet.

16. A paper-like sheet discriminator having a paper-like sheet thickness detection device for detecting a thickness of a paper-like sheet, wherein a longitudinal positional course along which the paper-like sheet passes through a thickness detector of said paper-like sheet thickness detection device is detected, wavelengths in a specified range

are extracted from a thickness detection signal of the paper-like sheet detected by said paper-like sheet thickness detection device, an integral value of full-wave rectification of wavelengths in the specified range is determined, and the thus determined integral value is compared with an integral value of full-wave rectification of the wavelengths in the specified range precedently stored in correspondence with said longitudinal positional course for passage of said paper-like sheet so as to detect crumples in said paper-like sheet.

17. A paper-like sheet discriminator according to claim 15, wherein the wavelengths in said specified range are 1mm to 2 mm.
18. A paper-like sheet discriminator according to claim 16, wherein the wavelengths in said specified range are 1mm to 2 mm.